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REMARKS  
ON THE  
PURULENT OPHTHALMY,  
WHICH HAS LATELY BEEN  
EPIDEMICAL  
IN THIS COUNTRY:

By JAMES WARE, SURGEON, F. R. S.

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TO  
SIR LUCAS PEPYS, BARONET,

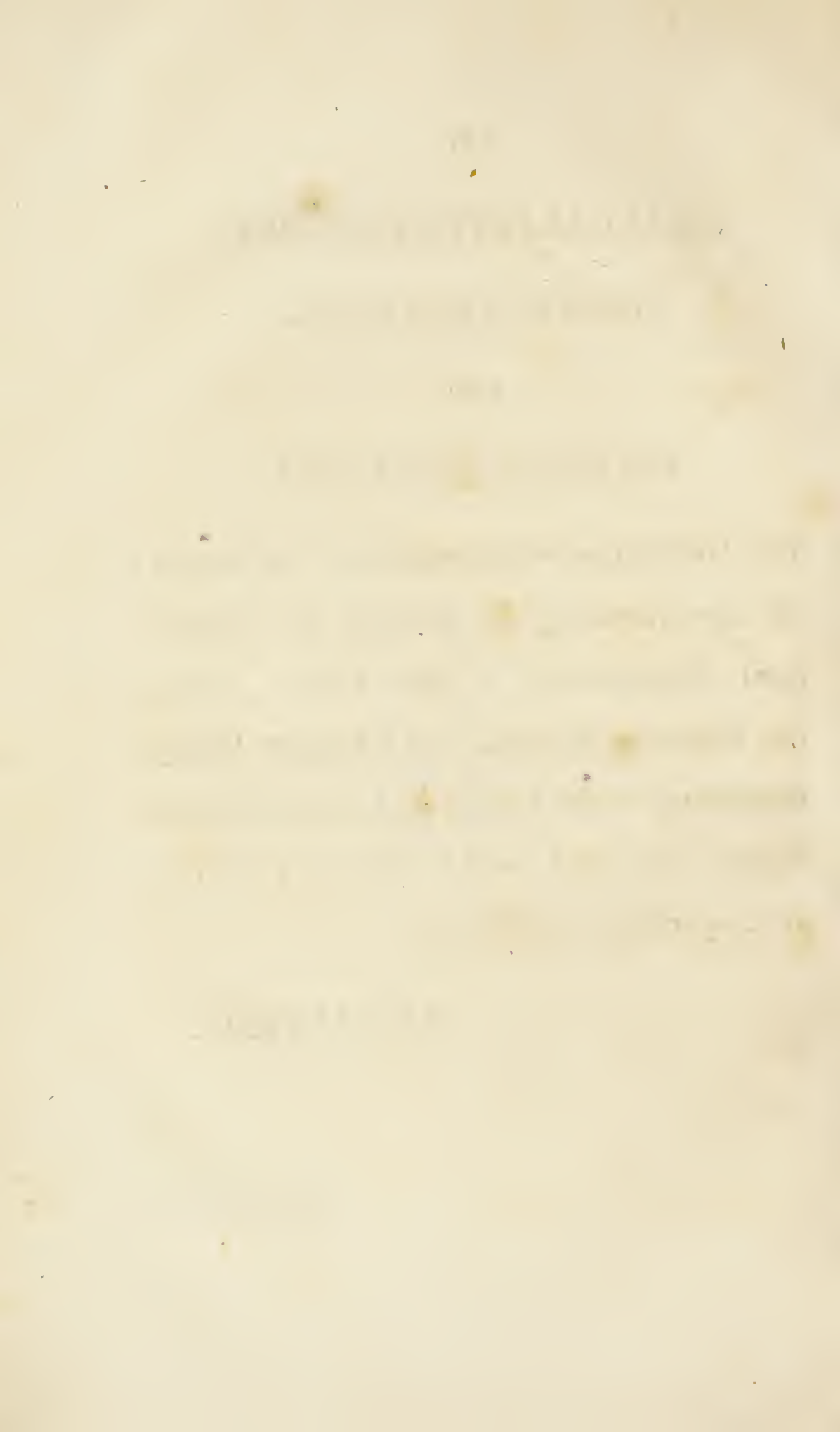
THOMAS KEATE, ESQ.

AND

FRANCIS KNIGHT, ESQ.

The Gentlemen who constitute the Board  
for superintending the Medical and Chirur-  
gical Department of the British Army,  
the following Remarks, on a subject highly  
interesting to the Public, and in an eminent  
degree important to his Majesty's Forces,  
are respectfully inscribed by

THE AUTHOR.





REMARKS  
ON THE  
PURULENT OPHTHALMY,  
WHICH HAS LATELY BEEN  
EPIDEMICAL  
IN THIS COUNTRY.

SO short a time has elapsed since I laid before the Public the last edition of Observations on Diseases of the Eyes, that I could not have thought myself justified in presenting new remarks to their notice, if an Epidemic Ophthalmia of the most violent kind had not lately appeared in different parts of the kingdom, and which in many instances resisted the remedies usually recommended for its cure. The disorder re-

seembles very closely that which destroyed the sight of a considerable number of our soldiers, whilst employed in the year 1801 in Egypt; and from hence it has by some been denominated the Egyptian Ophthalmy. This appellation, however, does not appear to me to be a correct title, since an ophthalmy, precisely similar in its symptoms and progress, has appeared long ago in this and in other countries, and has been described by various authors, ancient as well as modern. In Egypt, also, no less than in England, many other species of the ophthalmy continually prevail, all of them being perfectly distinct one from the other, and each requiring a peculiar mode of treatment. The late epidemic may, I think, with more propriety be denominated a purulent Ophthalmy; since one of its chief symptoms, and that which distinguishes it from every other, is the profuse discharge of a purulent coloured fluid, closely resembling the pus or matter that issues from an ulcerated sur-

face. It resembles also in many respects a disorder which I have described with some minuteness,\* under the title of “the Purulent Eye of New Born Children,” in which, no less than in that now under consideration, the discharge of matter is always profuse.†

In adult persons the violence of the inflammation that accompanies the discharge is extremely different. In some the appearance of the eye varies little from that which it assumes in those cases of

\* Observations relative to the Eye, vol. i. pp. 129, 309, and some that follow.

† The epidemic which is the subject of the present remarks is very different from an ophthalmy, which at different times has been epidemical in this and in other countries, but is unconnected with a purulent discharge from the eyes. This latter disorder is seldom productive of danger to the sight; and if it be treated with antiphlogistic internal remedies, and mildly astringent applications, it generally disappears in the course of a few days.



the ophthalmia that are produced by a common cold; but in the greater number the tunica conjunctiva, that covers both the inside of the eyelid and the globe of the eye, not only becomes universally red, but quickly swells to a considerable thickness; its membranous appearance being destroyed, and its projection causing the cornea to appear depressed and sunk in the globe. The swelling of that part of the conjunctiva which lines the inside of the eyelid is sometimes so considerable that it protrudes beyond the lid to a considerable extent, and entirely conceals the eye.

In some the pain produced by the inflammation resembles that of dust between the eye and the eyelid; in others it is accompanied with a sense of heat and weight; in others there is a deep seated intense pain in the ball of the eye; and in not a few the pain in the eye is ac-

accompanied with a distressing pain either in the whole or some particular part of the head. The pain is not in proportion to the quantity of discharge; since, when the latter has been profuse I have, in some instances, observed that the former has been far from considerable.

Sometimes the cornea speedily becomes opaque, the opacity first appearing round the circumference of this tunic, where it unites with the tunica conjunctiva. Very soon after the opacity is perceived, if the violence of the inflammation continue, a rupture of the cornea takes place, of which the patient is made sensible by a sudden gush of the aqueous humour. According to the part of the cornea in which the rupture happens, the pupil is more or less involved, and of course the future vision is more or less injured. I have seen in this disease the whole of the cornea slough, and come away within a

few days after the commencement of the disease. This however is a very rare occurrence. It more commonly happens, when the termination is unfavourable, that the cornea is only ruptured; the ruptured part being ulcerated to a greater or less extent, and a fungous excrescence not unfrequently protruding through the ulcer. The fungous tumor is in general soft and pulpy; but sometimes a portion of the iris is pushed out, of greater or less magnitude, according to the size of the rupture. This last projecting substance is distinguished by authors by the name of myocephalus, from its supposed resemblance to the head of a fly. It has been said that new vessels form on the cornea during the continuance of the inflammation; but this only happens when the inflammation remains a great length of time; and in the purulent ophthalmy I think it probable that the cornea is in general ruptured before these begin to appear. As



soon as the rupture takes place, the violence of the pain, if this has been considerable, always subsides, and the discharge of purulent matter is usually diminished. The inflammation that follows this period appears to me to be different from that which preceded it, and to be now kept up, partly by the acrimonious secretion which issues from the ulcer, and partly by the unequal pressure which the protruded part continually makes against the inner surface of the eyelid.

When both eyes are affected, the inflammation usually begins in one of them several days before it shews itself in the other, its progress being in general much slower in the eye last affected than in the first.

In some of the cases where the most dangerous symptoms were subdued without doing essential injury to the sight,

it has been found very difficult, completely to remove what may be called the relics of the disorder; by which I mean, a soreness of the edges of the eyelids, and a small degree of inflammation in the ball of the eye. It is particularly difficult to remove these, in those persons who have previously been subject to strumous affections; and the consequence of their continuance is, that either by a slight indiscretion in diet, or by exposure to an inclement atmosphere, the inflammation returns, and the whole train of its symptoms is reproduced.

It is difficult to discover in what way this disorder was first occasioned. The resemblance which it bears to that species of ophthalmia, which in many instances, has either accompanied or followed the common gonorrhœa, strongly impresses my mind with an idea, that the two disorders bear a close reference one to the other. I believe it is admitted by the most experienced surgeons,



that the gonorrhœa, in by far the greater number of instances, is perfectly distinct from the lues venerea; and that the remedies which are indispensably required for the cure of the latter, are wholly unnecessary for the cure of the former. The first cause of the gonorrhœa we do not know; but it is communicated by the application of a peculiar poison to the urethra, which inflames and excites a considerable purulent discharge from it. It is rarely productive, however, of any ulceration in the inflamed part, or any affection of the general constitution. In like manner, the purulent ophthalmia, (without inquiring at present into its first cause,) appears to me to be in general communicated by the application of a peculiar poison to the tunica conjunctiva, which inflames and produces a considerable discharge from it, but rarely occasions any ulceration in this tunic,\* or any

\* Strictures in the urethra, not unfrequently follow a gonorrhœa; and ulcers of the cornea, as well as a rupture of this tunic, not unfrequently follow a purulent

affection of the general system. Infants, as well as adults, are subject to the purulent ophthalmia; and it is a fact, well deserving notice, that some of the worst cases of this disorder that have occurred in infants, have happened in those whose mothers were subject to an acrimonious discharge from the vagina at the time the infants were born. Some of the worst cases also, that have occurred in adults, have happened in those, who either shortly before the attack of the ophthalmia, or at that very time, laboured under either a gonorrhœa, or gleet.\* I do

ophthalmia. But the former does not afford a proof of the previous existence of an ulcer in the urethra; nor does the latter, that an ulceration had previously taken place in the tunica conjunctiva.

\* Doctor Vetch observes in his account of “the Ophthalmia, which appeared in England since the return of the British army from Egypt,” p. 3, that in the 2d battalion of the 52d regiment, in which the disorder occurred, with a severity then unprecedented in this country, that “*excepting a great proportion of venereal cases,*” no particular distemper seemed to prevail; and the number of patients in the hospital were rapidly decreasing, when the first case of ophthalmia made its ap-

not mean to attribute every ophthalmia of this kind to such a cause. I am aware that it has sometimes occurred, and in the most violent degree, when no such circumstance could be suspected; but in the far greater number of adults whom I have seen affected by it, if the disorder had not been produced by the application of morbid matter from a diseased eye, I have been able to trace a connection between the Ophthalmia, and some degree of morbid affection in the urinary canal.

The ophthalmia that has been so dreadfully prevalent in some of our regiments, during the last year, has generally been attributed to a disease imported from Egypt. It is unquestionable that an ophthalmia, precisely similar to it, has prevailed in that country with a high degree of virulence, and to an immense extent, for several centuries; and a

pearance. Among these venereal cases is it not highly probable that not a few had the gonorrhœa?



great number of our soldiers, as well as those of France, experienced its malignant influence in the year 1801. The remains of the disorder were certainly brought into this country upon their return; and it is not improbable, that it was communicated by them to many others: but I still think I am justified by experience in believing, that if the smallest portion of a gonorrhœal discharge were applied to the eye, it is equally able to produce a similar disorder. I do not say, that this would universally happen. The gonorrhœa itself is not communicable in every individual case; but the exceptions are much too limited to invalidate what I believe to be a general rule, relative to its infectious nature. Other causes may contribute to aggravate, and perhaps may produce the disorder, and the purulent ophthalmia in Egypt has been attributed to a great number. The combined influence of heat and light, of a burning dust continually raised by the wind, and of the heavy dews

of the night, may powerfully contribute to excite inflammations in the eyes. But something more than these are required to induce the malignant ophthalmia now under consideration; since the same causes operate with equal violence in many other countries besides Egypt, and yet do not produce these effects: and in this country the disorder prevailed, during the last summer, to as great a degree, and upon as great a number of persons, within the small district of less than a mile, as it ever did, in the most sickly times, in any part of Egypt; and yet, beyond this space, on either side, scarcely a person was affected with it. Something more than atmospheric action seems, therefore, required to account for its spread and influence; and the most natural explanation appears to me to be, that this particular disorder is only communicable by absolute contact; that is, by the application of some part of the discharge which issues, either from the tunica conjunctiva of an affected eye, or from

some other membrane that secretes a similar poison, to the tunica conjunctiva of the eye of another person. That such a mode of communication did prevail in several of the regiments, in which the disorder raged with the utmost malignity in the last year, is, I believe, admitted both by the surgeons who belonged to these regiments, and by the medical inspectors, who were appointed to inquire into it. I can aver, that the same effect has been produced by a similar cause in schools and in nurseries; in both of which, from inattention to a rule which I believe of much importance, though too little regarded, of hindering the hand basins and towels, which have been used by persons who have this disorder, from being employed by others, before they have been thoroughly cleansed, the ophthalmia has been communicated to nearly twenty in one school,\* and to the nurse, and several of

\* In the school to which I more particularly refer, the disorder, though truly purulent, did not prevail with



the children in more than one family. I cannot therefore too strongly urge the advice which I took the liberty to give to the public in August 1806, through the medium of a periodical publication, most peremptorily to prohibit the indiscriminate use of these articles, both in schools and nurseries, in hospitals, ships, and barracks.

The purulent ophthalmia above described, though similar to that which is produced by a gonorrhœa, is widely different from the venereal ophthalmia; that is, from an ophthalmia accompanied or preceded by other evident symptoms of the lues venerea. In cases of this latter description there is generally a great exacerbation of pain during the night, and the internal parts of the eye are particularly affected. The pupil is usually contracted,

the same degree of violence that it did in the army, and none of the children had their sight essentially injured by it.

and loses the power of altering its size in different degrees of light. The iris assumes a greenish colour, and pustules not unfrequently form upon it. But in cases of the purulent ophthalmia, on the contrary, the inflammation solely affects the tunica conjunctiva and cornea; and the internal parts of the eye do not seem to have their structure at all altered, until the cornea becomes ulcerated, and the aqueous humour is discharged.

The purulent ophthalmia is also very different from an erisipelatous inflammation, to which the eyes of some are particularly subject. In this latter inflammation there is in general a tumefaction of the eyelids, and a considerable watery discharge from the eyes; the discharge being not unfrequently mixed with a small proportion of matter; but this matter is very different, both in quantity and appearance, from that which is produced by the puru-



lent Ophthalmy ; and in the erisipelas it seems to be secreted by the ciliary glands rather than by the inflamed tunica conjunctiva. In the erisipelatous Ophthalmy, again, the eyes are more impatient of the light than they are in that which is purulent, and the inflammation extends over a greater part of the face, not unfrequently affecting at the same time different other parts of the body.

Having finished the observations which I purposed to make on the symptoms of the purulent Ophthalmy, and on the sources from which it usually proceeds, I now pass on to offer a few remarks on the method of cure. Here I think it necessary to premise one or two observations on the treatment of the disorder when it appears

Infants. In them, notwithstanding the quantity of thick matter discharged from the eyes is often profuse, it rarely happens that either the inflammation or tu-

meffaction of the tunica conjunctiva is considerable;\* and if the accumulated matter be frequently washed away by means of an astringent lotion, injected between the lids from a blunt pointed syringe, its quantity is easily suppressed, and in a short time the infant becomes able to open the eyes, and bear the light. The lotion which I have found most effectual for this purpose is that which was first proposed by Bates, in his Pharmacopœia, under the name of the Aqua Camphorata. It is much too strong however to be used on these occasions, if made exactly according to Bates's prescription; and I usually recommend it in the following form, which

\* The exceptions to this observation are rare. In a few instances, however, both the upper and lower lids of the infant become swelled and everted; in which state they have been said, not unaptly, to resemble an inverted intestinum rectum; and they require not only to be scarified, but to be kept in their natural position by the continued application of the finger.

is only one fourth as strong as he directed.

℞ Cupri Vitriolati,

Boli Armeni, aa gr. viij.

Camphoræ, gr. ij.

Misce et affunde.

Aquæ Bullientis ℥viij.

Cum lotio sit frigida effundatur limpidus liquor, et sæpissimè injiciatur paululum inter oculum et palpebras.

On account of the great rapidity with which in most cases the matter is secreted, I beg leave to urge the necessity of injecting this lotion once at least in every hour; and I dwell particularly on the mode of injecting it by means of a syringe, because the medicated liquor cannot, in any other way, be sent between the swelled conjunctiva that lines the eyelids, and that part of it which covers the globe



of the eye, with sufficient force to remove the collected matter.

The bowels of the infant should be often gently opened; a small blister should be applied either behind each ear, or between the shoulders; and small doses of calomel are to be given once or twice in the day, if, as sometimes happens, there be any suspicious eruptions on the skin.

In this way of treating the disorder the amendment in infants is in general rapid and striking. And though it cannot be denied that it sometimes appears in so slight a degree, that it may be treated safely in a different manner, or perhaps be wholly left to itself, yet the improvement which I have repeatedly experienced to take place as soon as this mode has been adopted, and the destructive effects, to which I have been often a witness, when a different treatment has been pur-

sued, unitedly urge me to recommend it, in the strongest manner, as that upon which the best dependance can be placed; and to the use of which, there is strong reason to believe, many who have had this alarming disorder are now indebted for the preservation of their sight.

But it is not necessary to say more at this time on the treatment of the purulent Ophthalmia of Infants. The reader who is desirous of further information on this part of the subject is referred to the remarks I have made upon it in the last edition of "*Chirurgical Observations relative to the Eye.*"

I rather wish to dwell now on the treatment of the purulent Ophthalmia of Adults. The numerous instances in which this disorder has terminated in blindness in our own country within the last two years,

chiefly in the army, but sometimes in private practice, most powerfully call for an exposition of every hint that affords a prospect of being rendered effectual to hinder so melancholy an event.\*

The principal difference between the purulent Ophthalmia of infants, and the purulent Ophthalmia of adults consists in the different states of the tunica conjunctiva. In the former, notwithstanding the quantity of matter confined within the lids is often profuse, the inflammation of the conjunctiva is rarely considerable; and when injury is done to the cornea it seems to proceed, as has been above observed, ra-

\* Dr. Vetch informs us that “in the 2d battalion of  
“the 52d regiment, which consisted of somewhat more  
“than seven hundred men, 636 cases of Ophthalmia  
“were admitted into the hospital between August 1805,  
“when the disease commenced, and the same month  
“in 1806. Of this number fifty were dismissed with  
“the loss of both eyes, and forty with that of one.”



ther from the confinement of acrimonious matter upon this tunic, than from the violent and morbid action of the inflamed vessels;—but in the latter, though the discharge of purulent matter may not be so great as it is in infants, yet, when this is least, the discharge is always accompanied with a violent inflammation, and generally with a tumefaction, of the conjunctiva, by which its membranous appearance is destroyed, and the cornea is made to appear depressed and sunk in the globe of the eye. In this alarming state of the disorder, local evacuations, such as those produced by leeches on the temples, or by a scarification of the eyelids, however effectual these may prove in the milder states of the Ophthalmy, and however useful they may here be as collateral aids, have been found utterly unable, by themselves, to arrest the progress of the inflammation. In the army, where the disorder has been more prevalent than in any

other class of the people, it has been found indispensably necessary to draw off a large quantity of blood from the general system; and the more early and more suddenly the evacuation has been made, the more effectual the remedy has been found. This could not be accomplished in any way so speedily or so certainly as by venesection in the arm. The quantity taken away was seldom less than sixteen ounces, and it has been extended with advantage to thirty, forty, and even sixty ounces. When so large a quantity is drawn off, it should be recollected that the object in doing it is not merely to diminish the action of the inflamed vessels, or, as it has been called, the disposition to the disease, but the power of the constitution to carry it on. The Public are indebted for the first recommendation of this bold practice to two interesting papers on the subject, one published in the *Edinburgh Medical and Surgical Journal* of January 1807, by Mr.



Peach, surgeon of the 2d battalion of the 52d regiment, and the other, in a separate tract, about the same time, by Doctor Vetch, assistant surgeon of the 54th regiment.

The dependance of these gentlemen was almost entirely placed on large and sudden evacuations of blood ; and the extent to which the practice was carried in the 52d regiment, must astonish and alarm those who have not been witnesses to the extreme danger of the disorder, and the immediately happy effects, which, we are informed, resulted from this bold treatment. It is necessary, however, to make an allowance for the difference that is to be expected between a disorder in a military hospital, and one, similar to it, in private practice. And indeed, though I have seen the Ophthalmia attended with all the other symptoms that have been so accurately described by these gentle-

men, I have seldom known it to be accompanied with the excruciating pain which they mention. I have rarely, therefore, carried the system of depletion to the extent to which it was pursued by them; but when it has been employed in a more moderate way, I have seen it afford most essential relief, and have always placed considerable dependance upon it.

Persons who have had their strength diminished by previous illness, have not unfrequently been attacked with this species of the Ophthalmia; and it is a fact, that these, no less than stronger persons, have sometimes derived great advantage from the loss of eight or ten ounces of blood from a vein in the arm; but in such persons it has rarely been advisable to repeat the operation, and, when it has been necessary to remove blood afterwards, I have rather chosen to take it in the neighbourhood of the eye, either by opening the vein

that passes on the side of the nose, (from which, if it be of its usual size, five or six ounces of blood may be drawn,) or, by applying five or six leeches on the hollow part of the temple, and encouraging the bleeding from the orifices which the leeches make, by the application of warm water. Sometimes, in place of either of these operations, it is advisable to take blood from the inside of the lower eyelid, by scarifying that part of the conjunctiva which lines it, with the point of a lancet. This last operation is easy to be performed; and, if it be done well, it gives very little pain, and will not be followed by any irritation of the eye. The lancet which is used should be in the best order, and should be carried along the inside of the lower lid, parallel to its edge, and not far distant from it. The advantage of scarifying the lid near its edge, in preference to performing the operation either on the ball of the eye, or further back on the lid, is derived



from the superior tension which the tunica conjunctiva has in this part, in consequence of the cartilage that lies behind it; and if the operation be performed here, and, as is above recommended, with a sharp lancet, thirty or forty drops, and sometimes a larger quantity, of blood may be taken away, with almost immediate advantage. I beg leave, however, to offer a caution against a mode of scarifying, which has sometimes been adopted in these cases, by pricking the eyelid, ten, twenty, or thirty times in quick succession; a mode which, besides the pain that it occasions, is liable to increase the irritation, and, to say the least, is certainly unnecessary. The lancet need never be applied more than twice, and rarely more than once; and perhaps it will give less pain, if the incision be made by drawing the edge of the instrument along the inflamed membrane, from the point towards the handle, instead of using the direct point for this purpose. The issue of

the blood from the orifices, may be assisted by gently everting the lid with the end of the finger; and it is more useful to take off the finger occasionally, and then to apply it again, and thus renew the eversion, than to continue the finger steadily on the lid. Some apply warm water, as is done after the application of leeches, in order to promote the bleeding, but it does not appear to me to be of much use for this purpose.\*

\* When the tunica conjunctiva is much thickened, as well as inflamed, it might occur to the reader, that the tumefied portion might be removed by excision, with a probable chance of averting the danger that threatened the cornea; but I much fear, if such an operation were performed, or even if large incisions were made into the tumefied part, whilst the active inflammation continued, it would rather tend to hasten than retard the opacity and suppuration of this tunic. After the violence of the inflammation, however, is subdued, if one or more of the blood vessels of the tunica conjunctiva then remain enlarged, and are continued over the cornea, feeding, as it might seem, a speck on this tunic, the removal of a portion of the conjunctiva, near the circumference of the cornea, so as to include a part of the enlarged vessels, may prove a useful operation; and it has sometimes caused the vessels speedily to collapse and the speck to disappear. In



After the evacuation of blood, whether it be made generally or locally, it is often beneficial to apply a large blister, either on the head or back. Anodynes should be given of more or less strength, according to the degree of the pain; purgative medicines should occasionally be administered; and an antiphlogistic regimen be strictly enforced, in the way both of medicines and diet.

All the above directions appear to be

those affections of the eye, also, in which the surface of the cornea becomes universally dewy and opaque, without any considerable inflammation either preceding or accompanying this change in its structure, the diseased action has repeatedly been stopped, the opaque particles cast off, and the surface under them has resumed its transparency, in consequence of removing about one sixteenth part of an inch of the conjunctiva all round the cornea by means of a curved scissars. The fourteenth, fifteenth, and sixteenth cases, related in my *Observations on the Eye*, are intended to illustrate this particular disease. But I beg leave to repeat the remark before made, that such an operation ought not on any account to be performed so long as there is any active inflammation in the tunica conjunctiva.

highly important, and to require close consideration in every case of the purulent Ophthalmia. They coincide in a great measure with the advice that has been given in the tracts, published by Mr. Peach and Doctor Vetch. In what I am going to add, however, the experience that I have had, obliges me to differ from the opinions advanced by these gentlemen.

Mr. Peach says, “ I have with advantage  
“ dropped the undiluted aq. lytharg. acetat.  
“ into the eye:—though at first it occasioned great pain, in some instances it  
“ proved of service;—but in general I have  
“ come to the conclusion, that dropping  
“ substances into the eye is not serviceable.”  
He adds, shortly afterwards, “ since we  
“ desisted from dropping tinct. opii into the  
“ eyes, we have had fewer cases of inversion of the eyelids.”\*

\* Edinb. Med. and Surg. Journal for January, 1807.

In reply to these remarks of Mr. Peach, I beg leave to observe, that it does not follow that all applications to the eye must be improper, because the aqua lythargyri acetati, or the tinctura opii, failed to afford relief. The former of these, when undiluted, appears to me to be much too strong to be applied to the eye at any time; and the tinctura opii also may not improbably be found too powerful, during the highly active state of the inflamed vessels in this disorder. It may also be recollected, that when I recommended the application of the tinctura thebaica, in inflammations of the eye, I particularly requested that the tinctura opii might not be substituted in its place; and in cases where the inflammation was violent, I added a caution against the use even of the tinctura thebaica itself, until evacuations and other proper means had diminished the excessive irritation.\*

\* Chirurg. Observations relative to the Eye, vol. I. page 53.



Doctor Vetch, in his Observations on the Ophthalmia, does not object to the use of external applications, in the way in which this was done by Mr. Peach; but he speaks of them in so general a manner, that it appears to me very doubtful which of those that are mentioned he preferred, and whether he placed much dependance on any of them.

He says, “ while by such means, (that is  
“ by large and sudden evacuations of blood)  
“ we lessen the violence of the internal  
“ disease, and effectually prevent its termi-  
“ nation in the rupture of the cornea, by  
“ the use of local applications we are to  
“ endeavour to diminish the external symp-  
“ toms. Linen dipt in some cooling lotion  
“ should be kept constantly applied over  
“ the eyes. Such applications, as experience  
“ seems to have accommodated to the dif-  
“ ferent stages of the disease, should be  
“ carefully dropt into the eye. In the first

“ stage the aqua sapphirina will, I think, be  
“ found the most serviceable. When the  
“ swelling of the palpebræ has taken place,  
“ the aq. lithargyri will be found useful  
“ both in lessening the formation of the  
“ matter, and in cleansing it from the eye,  
“ which is always a grateful operation to the  
“ patient, and consequently of much im-  
“ portance in the cure. The injection of  
“ tepid water with a syringe, for the same  
“ reason, is always beneficial, and while the  
“ patient is subject to the recurrence of the  
“ pain, I should be inclined to prefer it to  
“ any other application. To lessen the swel-  
“ ling of the palpebræ, compresses dipt in  
“ the aqua litharg. may be externally applied,  
“ and secured by a pretty firm pressure, which  
“ seemed often of the greatest benefit.  
“ When the swelling and other symptoms  
“ of the second stage have disappeared, a  
“ treatment very similar to what is adopted  
“ in the first stage becomes necessary. The  
“ local applications may be rendered how-

“ ever more astringent. The aqua lithargyri,  
“ and Bates’s camphorated water, solutions  
“ of alum, or muriate of mercury, may be  
“ used with advantage.”\*

In this quotation, which contains the whole that Doctor Vetch has said on the subject of external applications, the observations are so general, that a practitioner must find it very difficult to determine which of those that are mentioned he ought to prefer. To remove this difficulty is one of the chief objects of the present publication; and for this purpose I beg leave to select Bates’s aqua camphorata, as an application which appears to me to be pre-eminently useful, and which, with the cautions I am going to mention, may, I think, safely take place of all the others.

In the nineteenth page, I have recommended a lotion, which is exactly similar

\* An account of the Ophthalmia, as it appeared in England since the return of the British army from Egypt, by John Vetch, M. D. published 1807, page 111.



to a mixture of one part of this aqua camphorata with three parts of common water, to be frequently injected between the eye and the eyelid in the purulent eyes of Infants; and in this proportion, and this way of using it, I can strongly recommend the same application in the purulent eyes of Adults. When it is considered, that in both a profuse secretion of purulent coloured mucus constitutes the essential character of the disease, it must, I think, be evident that in both the application of a moderately astringent lotion will be proper to restrain such secretion; and this which is here mentioned is the best that I know for the purpose. When it is further considered, that the morbid mucus is confined between the swelled conjunctiva that lines the eyelids, and that part of it which covers the globe of the eye, it must be also evident that, in order to bring the matter effectually away, the lotion must be propelled over the eye with some degree of force: and this cannot be better effected than by the

use of a small blunt pointed syringe, by means of which the medicated liquor may be carried over the whole surface of the eye, and the retained matter be each time entirely cleared away. When, again, the rapidity is also considered with which this morbid matter is formed, it must, I think, be admitted that, in order to keep the eye clear, it is necessary to repeat the injection at very short intervals of time. I have often applied it twice, and rarely less, in bad cases, than once in an hour; sometimes continuing it with nearly equal frequency during the night as during the day: and when, in the progress of the disorder, the violence of the inflammation has abated, and the quantity of discharge is decreased, the strength of the lotion may be diminished, and a longer period be permitted to intervene between the times of applying it.

In the highly inflammatory state of the eyes which sometimes accompanies the discharge in adults, and which is much

greater in them than it usually is in infants, I have occasionally thought it right at first to use the lotion in a more diluted state than that which is above-mentioned. For instance, I have added only four or five grains, instead of eight, of the cuprum vitriolatum to eight ounces of water; and I would never advise, while the inflammation is considerable, to make it stronger than in the proportion of eight grains of cuprum vitriolatum to eight ounces of water; since from an over eagerness to expedite the cure by strengthening the application, the action of the inflamed vessels is liable to be increased; and, when it has been made very strong, the whole cornea has sometimes seemed to be hurried by it into a state of suppuration.

I have usually advised to apply the lotion cold; and in infants, particularly, the success that has attended its use in this way has been almost universally so satisfactory, and indeed so striking, that I



cannot refrain from urging its cold application in the strongest manner. The greater degree, however, both of general fever and local inflammation, which takes place when the disorder attacks adults, renders it sometimes necessary to apply the lotion warm. And if the pain of the eye, and tumefaction of the conjunctiva be considerable, it may be advisable not only to make the lotion of the weakest standard that I have mentioned, but to leave longer intervals between the times of employing it; and occasionally to interpose the injection of merely tepid water in the way recommended by Dr. Vetch. Under these circumstances the frequent application, also, of hot water, or of a hot decoction of poppy heads, by means either of a flannel or of a large sponge, or by holding the eye over a cup filled with these liquors, has afforded considerable ease, and has seemed to diminish the morbid action of the inflamed vessels.

But in addition to the advice that has now been offered, I beg leave to direct the reader's attention to another remedy, which appears to be of material importance, and from the use of which very considerable benefit has sometimes been derived. This remedy is strongly indicated by the manner in which the disorder terminates when it pursues its course in the most malignant manner. In such cases the cornea is ruptured, and the aqueous humour discharged; and as soon as this happens the patient becomes easy, and the purulent discharge diminishes; the disorder then assuming, as has above been observed, a new shape, and becoming troublesome in consequence rather of the discharge from the ulcer, or of the unequal pressure of the ulcerated surface against the inside of the eyelids, than of the violent action of inflamed vessels. The inference which may, I think, be deduced from this fact is, that the efforts of art should be made to imitate those of nature; and that

as soon as a rupture of the cornea seems inevitable, a wound should be made in this tunic sufficiently large to discharge the aqueous humour, and in such a part, that the transmission of light through the pupil may not afterwards be interrupted by the scar which the incision may leave. An operation of this kind was first proposed by Mr. James Wardrop, in an ingenious paper published in the Medical and Surgical Journal in January 1807. He recommended it particularly in cases where the cornea is opaque and the eyeball tense; and his immediate view in performing it was to restore the transparency of the cornea by evacuating the aqueous humour. Mr. Wardrop mentions four cases in which he performed the operation with success. No one of these was of that particular kind to which I chiefly advert in the present remarks; but if the operation prove effectual in the cases for which Mr. Wardrop recommends it, how much more



likely must it be to afford relief in those, where the cornea is not only tense and opaque, from the extreme violence of the inflammation, but where there is also the strongest reason to apprehend it is on the point of being ruptured, and becoming ulcerated? It by no means appears necessary, however, to have recourse to it in every case even of the purulent Ophthalmia. General evacuations, joined with those that are local, together with the accurate application of mildly astringent lotions, and a strictly antiphlogistic regimen, will, in slighter cases of this disorder, prove fully sufficient to stop the progress of the inflammation; but if, after these have been employed, the symptoms still continue, and especially, if the cornea begin to lose its transparency, and a white rim appear round its circumference, somewhat similar to the arcus senilis of old persons, it then becomes of the highest importance to have recourse to it. Mr.

Wardrop recommends to make the incision with a small knife of the kind that is used to divide the cornea in the operation of extracting the cataract. This instrument is perfectly proper for the purpose; but the puncture may be made with great safety by a careful person with a common lancet; or, which perhaps is preferable to either of the two, with a sharp pointed couching needle, having a blade somewhat wider than this instrument usually has, and a groove in its middle continued all the way from the handle to the point.\* The only direction necessary to be observed in performing the operation is to introduce the point of the instru-

\* An instrument of this kind appears to be well adapted for puncturing the eye, in those cases of gutta serena accompanied with inflammation, in which there is reason to apprehend that a fluid is accumulated between the choroid coat and retina. Such a case is related in "*Chirurgical Observations relative to the Eye*," vol. i. page 510.

ment about the tenth part of an inch anterior to the connection of the cornea with the sclerotica, and to push it gently forward, parallel to the plane of the iris, until the aqueous humour make its escape. If the grooved couching needle be employed, its evacuation necessarily takes place, as soon as the groove penetrates into the anterior chamber; but if a cataract-knife, or a lancet, be used, and these possess the shape of a wedge (which in the former instrument is peculiarly desirable) it may be necessary to turn the blade a little on its axis after it has been introduced, in order to give the aqueous humour an opportunity of escaping; and when this has been accomplished, the instrument should immediately be withdrawn, to avoid wounding the iris.

I have said, in the sixteenth page, that the purulent Ophthalmia bears some resemblance



to a common erysipelatous inflammation of the eye. It is necessary, however, to distinguish these disorders, one from the other, since they seem to require a different mode of treatment. Both disorders are equally served in the beginning by the use of evacuants; but though the erysipelatous Ophthalmy is particularly relieved by medicines that promote perspiration, these do not produce the same beneficial effects when administered in that which is purulent. The access of fresh air to the eye, on the contrary, in cases of the latter description, is peculiarly grateful; and some of the worst cases that have come under my notice have occurred in persons who have attended me at my own house, who, notwithstanding their daily attendance, have been cured with as little, and sometimes with less, difficulty, than others, apparently at first not more malignantly affected, who have been kept in the strictest state of confinement in their own houses or chambers.

It is not meant by this remark to encourage an unnecessary exposure to draughts of air; or sudden changes from a hot to a cold atmosphere; but I am more and more inclined to believe that confinement to a bed, or even to a chamber, in this disorder, is not necessary, and that in some respects it is liable to prove injurious, hindering the accurate application of suitable remedies, and precluding, as has just been mentioned, the due access of fresh air to the eye.

Among the cases of Ophthalmy, annexed to the last edition of the Observations I published on Disorders of the Eye, the eighteenth and nineteenth very nearly resemble the worst of those which in the last year were epidemical. I shall not trouble the reader with a repetition of them here; nor shall I recite any of those slighter cases which are almost daily coming under my notice, in which a treatment similar to that recommended in the preceding pages has been found speedily effectual for the cure. I shall

only take the liberty at this time to relate two; and these with a view, not merely to point out the advantage of injecting the diluted aqua camphorata in the cases of Adults as well as of those of Infants, but also to exemplify the safety and probable good effects of puncturing the cornea, and discharging the aqueous humour, when the inflammation has risen to its greatest height, and the cornea is in the most imminent danger of being ruptured. I had intended to insert also the case of a female child, twenty months old, who had a true purulent Ophthalmy, of the most alarming kind, in each eye, which followed a discharge from the vagina, very nearly resembling the fluor albus of grown persons. But though in this instance the injection of the diluted aqua camphorata appeared to afford very essential service, the gums were also lanced, and two of the dentes canini, and one of the incisores, came through in consequence of it. It may therefore be doubted,



whether the removal of the irritation which the operation effected might not have contributed as much to the amendment that followed, as the local remedies that were applied to the eyes.

### CASE I.

Mrs. ———, thirty-two years of age, was attacked on the 22d of February, 1807, with an inflammation of the right eye, which became more and more troublesome until the 27th, when she consulted a surgeon. At that time not only the tunica conjunctiva was much inflamed and tumefied, but there was a considerable accumulation of matter between the eye and the eyelid, which though often wiped away was rapidly renewed. She had been long subject to the fluor albus, and there were reasons for supposing that the acrimony of the discharge had been increased a short time before the eye became inflamed. Sixteen ounces of blood.

were taken from a vein in the arm, and the eye was almost continually washed, by means of a soft sponge, either with cold water, or with a mixture of *aqua ammoniæ acetatæ*, and elder flower water. A purgative draught was also given. On the 28th the inflammation was rather increased. She had a constant sensation of dust in the eye, and the discharge of purulent matter became more profuse than before. The blood that had been taken away was cupped and sizy. The lower lid was now scarified. Ten ounces more of blood were taken from the arm: a large blister was applied on the head; and the diluted *aqua camphorata vitriolica* was applied to her eyes instead of the diluted *aqua ammoniæ acetatæ*. On the 1st of March, the inflammation and discharge continuing as profuse as before, I was consulted. At this time the cornea was almost hid by the tumefied conjunctiva; and, when the matter was washed off, the rim of the former appeared opaque, and the opacity

extended forward on the side next the nose, so as to hide a part of the pupil. In this alarming state of the disorder I determined to make a puncture through the side of the cornea, in order to discharge the aqueous humour, and with a hope to prevent a rupture of this tunic from taking place opposite to the pupil. The operation was performed with one of the instruments that is employed to divide the cornea in the operation of extracting the cataract. It was introduced, as in that operation, on the side of the tunic next the temple, and when its point had passed about the eighth part of an inch into the anterior chamber, parallel to the iris, on making a slight turn of the instrument, the aqueous humour came through the opening; upon which it was immediately retracted. The operation did not give pain, nor did it make any immediate alteration in the appearance of the eye. The diluted aqua vitriolica camphorata was applied to the eye in the same way as before. Ten



ounces more of blood were taken from the arm, and the purgative medicine repeated. On the 2d she had not experienced additional pain in consequence of the operation, and the inflammation seemed somewhat diminished. The aperture which had been made in the cornea was plainly visible, and the cornea appeared more flaccid; but the opacity was still considerable, and it covered almost the whole of the pupil. On the 4th I was surprised to find that the purulent discharge had almost entirely ceased, and the swelling of the conjunctiva was much diminished; but the opacity of the cornea continued, and a portion of this tunic round the new aperture seemed disposed to slough. The superior part of the cornea, however, remained transparent, and a small portion of the pupil was visible through it. On the 6th, the inflammation was further diminished, and the discharge from the eye so thin and clear, that it could scarcely be called purulent. On the 9th, the aperture still

remained open, and the opacity of the lower part of the cornea was nearly as before. On the 15th, there was scarcely any inflammation or discharge from the eye; but in the part where the aperture had been made, a transparent vesicle was formed, through which the outer and inferior part of the pupil could be plainly seen; the upper rim of the pupil being also perceptible above the opacity. The patient was able to distinguish my fingers distinctly with this eye. In the state now described, the eye remained a fortnight; at the end of which the vesicle that covered the aperture in the inferior part of the cornea gave way, and a large portion of the aqueous humour was again discharged. After this the aperture closed, in consequence of which the inferior part of the pupil was no longer perceptible, and the sight became much more indistinct than before. Large objects, however, were still distinguished through the superior part of the pupil; and by persevering in the appli-

cation sometimes of the pulvis sacchari albi, sometimes of the aqua sapphirina, and sometimes of the tinctura thebaica, the eye became strong; and, if the other eye had not been perfect, the sight with the affected eye alone would have been sufficient to afford great assistance in the ordinary employments of life.

## CASE II.

Mr. ———, about nineteen years of age, was attacked with a gonorrhœa in July last, and the discharge from the urethra continued for three weeks, notwithstanding the use of various remedies ordered for him by his surgeon. On the 7th of August, he first perceived a weakness in the right eye, and on the following day it became inflamed, and watered considerably. On the 10th, both the eyelids swelled, and the discharge became profuse and purulent. On the 12th, I first saw him, and at this time the swelling of the lids was so considerable that he was



unable to open them, his head as well as eyes being continually in great pain. Fourteen ounces of blood were immediately taken from his arm, and the purulent matter that lodged upon the eyes was washed away by injecting on it, by means of a syringe, a mixture of one part of Bates's aqua camphorata, and three parts of common cold water. A purgative medicine was administered; the injection was repeated once every hour; and in the evening three leeches were applied on each temple. If the pain had continued it was intended to foment the eyes with a hot decoction of poppy heads; but in this respect he received so much relief from the evacuations and injection, that the use of the fomentation did not become necessary. On the 14th the swelling of the lids was somewhat abated, and the purulent discharge was not quite so profuse. I now scarified the edges of both the lower lids, and took from each

at least half an ounce of black blood, which became grumous as soon as it issued from the orifices. The cold injection was continued every hour as before. On the 15th the swelling of the left eye and the discharge from it were evidently diminished; but those of the right eye continued. On examining the eyes, the tunica conjunctiva of the left, though inflamed, appeared very little thickened; but that of the right was much swelled; the whole cornea appeared cloudy, and on its superior part was an ulceration which I feared would penetrate into the anterior chamber of the aqueous humour, and, involving a portion of the iris, endanger the future usefulness of the eye. In order to obviate this, I made a puncture through the cornea, on the side next the temple, and discharged a considerable portion of the aqueous humour. The puncture was made, as in the case last described, with one of the knives that is usually employed to di-

vide the cornea in the operation of extracting the cataract, and it gave so little pain that it was scarcely felt by the patient. The uneasiness of this eye both before the operation, and for several days afterwards, was greater than that of the other eye, but it could not now be called acute. During the day on which the operation was performed, the lotion was applied only to the outside of the right eye; but on the following day it was injected between the lids of this eye as well as the other, so as entirely to wash away the retained matter; and the injection was repeated as frequently as before the operation. On the 17th the lids of both eyes were less swoln, and the discharge less profuse. The conjunctiva that surrounded the cornea was less prominent, and the ulceration on its surface, though still apparent, was not increased. On the 19th a considerable hæmorrhage took place from the nose. Three leeches were again ap-



plied to each temple; the purgative medicine was repeated, and also the lotion in the same way as before; but this last was injected only once in three or four hours. The pain was now inconsiderable; and the swelling and discharge gradually diminished after this time. The left cornea was uninjured; and the right speedily recovered its transparency. The ulceration was soon filled up, and the speck which it occasioned, being fortunately above the pupil, did not interrupt vision. Sept. 7th he went into the country in order to recruit his strength, and shortly afterwards returned to his usual avocation, in perfect health, and with the full use of both his eyes.

THE END.

ERRATA.

P. 17, L. 1, for *Erisipelas*, read *Erysipelas*.

— 24, — 21, for *papers*, read *dissertations*.

— 31, — 8, between *differ* and *from*, add *somewhat*.

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